

Serial No. 09/707,723
Art Unit 1745

8

REMARKS

The Applicants' note with appreciation the Examiner's identification of allowable subject matter in Claims 1-24. The following amendment amends the specification and Claims 25-28, 31, 38, 39, 41-44, 47, 55, 5-60, 63, 70 and 71 to more clearly define the subject matter of the invention and cancels Claims 29, 30, 45, 46, 61 and 62 without prejudice. Now in the application are Claims 1-28, 31-44, 47-60, and 63-72 of which Claims 1, 8, 25, 41 and 57 are independent. No new matter is added and no new issues are raised. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Attached hereto is a marked up version of the changes made to the specification and claims by the current amendments. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

Specification:

With regard to the Examiner's objection to the specification at page 4, lines 29-31 the cited passage is amended to reflect that the two second cell groups lie along the branches of the at least one air passage, as suggested by the Examiner.

Regarding the Examiner's objection to the specification under 37 C.F.R. §1.75(d)(1) and M.P.E.P. §608.01(o), specifically with regard to Claims 14, 30, 46, and 62, Applicants' contend that the amendment to the specification discussed above provides the proper antecedent basis for the claimed subject matter.

Claim Objections:

Claims 26-28, 42-44, and 58-60 stand objected to under 37 C.F.R. §1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants' contend that the amendments to Claims 26-28, 42-44, and 58-60 by this amendment further limit the subject matter of the previous claim from which they may depend and are

Serial No. 09/707,723
Art Unit 1745

9

therefore in compliance with 37 C.F.R. §1.75(c). Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the objection to Claims 26-28, 42-44, and 58-60.

Claim Rejections under 35 U.S.C. § 102

For purposes of clarity in the discussion below, the respective rejections under 35 U.S.C. § 102 are discussed separately.

A. Rejection of Claims 25-28 under 35 U.S.C. § 102(b):

The Office Action rejects Claims 25-28 as being anticipated by EP 0940864 A2 (hereinafter "European"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) for the following reasons.

Amended Claim 25 recites the allowable subject matter identified by the Examiner in Claim 29 and 30. As such, European does not anticipate the subject matter of amended Claim 25. Accordingly, dependent Claims 26-28, which depend, either directly or indirectly, from amended Claim 25, and thus incorporate the allowable subject matter of amended Claim 25 are not anticipated by the European reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 25-28 under 35 U.S.C. §102(b).

B. Rejection of Claims 41-44 under 35 U.S.C. § 102(b):

The Office Action rejects Claims 41-44 as being anticipated by EP 0940864 A2 (hereinafter "European"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) for the following reasons.

Serial No. 09/707,723
Art Unit 1745

10

Amended Claim 41 recites the allowable subject matter identified by the Examiner in Claim 45 and 46. As such, European does not anticipate the subject matter of amended Claim 41. Accordingly, dependent Claims 42-44, which depend, either directly or indirectly, from amended Claim 41, and thus incorporate the allowable subject matter of amended Claim 41 are not anticipated by the European reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 41-44 under 35 U.S.C. §102(b).

C. Rejection of Claims 57-60 under 35 U.S.C. § 102(b):

The Office Action rejects Claims 57-60 as being anticipated by EP 0940864 A2 (hereinafter "European"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) for the following reasons.

Amended Claim 57 recites the allowable subject matter identified by the Examiner in Claim 61 and 62. As such, European does not anticipate the subject matter of amended Claim 57. Accordingly, dependent Claims 58-60, which depend, either directly or indirectly, from amended Claim 57, and thus incorporate the allowable subject matter of amended Claim 57 are not anticipated by the European reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 57-60 under 35 U.S.C. §102(b).

D. Rejection of Claims 25-29 under 35 U.S.C. § 102(a):

The Office Action rejects Claims 25-29 as being anticipated by JP 2000-133225 (hereinafter "Japanese reference"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35

Serial No. 09/707,723
Art Unit 1745

11

U.S.C. § 102(a) for the following reasons. Claim 29 is cancelled by this amendment and therefore the rejection of Claim 29 is considered moot.

Amended Claim 25 recites the allowable subject matter identified by the Examiner in Claim 30 and the subject matter of intervening Claim 29. As such, the Japanese reference does not anticipate the subject matter of amended Claim 25. Accordingly, dependent Claims 26-28, which depend, either directly or indirectly, from amended Claim 25, and thus incorporate the allowable subject matter of amended Claim 25 are not anticipated by the Japanese reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 25-29 under 35 U.S.C. §102(a).

E. Rejection of Claims 41-45 under 35 U.S.C. § 102(a):

The Office Action rejects Claims 41-45 as being anticipated by JP 2000-133225 (hereinafter "Japanese reference"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(a) for the following reasons. Claim 45 is cancelled by this amendment and therefore the rejection of Claim 45 is considered moot.

Amended Claim 41 recites the allowable subject matter identified by the Examiner in Claim 46 and the intervening subject matter recited in Claim 45. As such, the Japanese reference does not anticipate the subject matter of amended Claim 41. Accordingly, dependent Claims 42-44, which depend, either directly or indirectly, from amended Claim 41, and thus incorporate the allowable subject matter of amended Claim 41 are not anticipated by the Japanese reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 41-45 under 35 U.S.C. §102(a).

Serial No 09/707,723
Art Unit 1745

12

F. Rejection of Claims 57-61 under 35 U.S.C. § 102(a):

The Office Action rejects Claims 57-61 as being anticipated by JP 2000-133225 (hereinafter "Japanese reference"). Applicants' respectfully traverse this rejection in light of the above amendments and request the reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(a) for the following reasons. Claim 61 is cancelled by this amendment and therefore the rejection of Claim 61 is considered moot.

Amended Claim 57 recites the allowable subject matter identified by the Examiner in Claim 62 and the intervening subject matter recited in Claim 61. As such, the Japanese reference does not anticipate the subject matter of amended Claim 57. Accordingly, dependent Claims 58-60, which depend, either directly or indirectly, from amended Claim 57, and thus incorporate the allowable subject matter of amended Claim 57 are not anticipated by the Japanese reference.

Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 57-61 under 35 U.S.C. § 102(a).

Serial No 09/707,723
Art Unit 1745

13

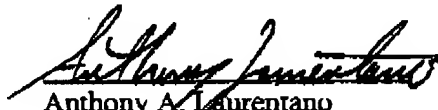
FAX RECEIVED
JUN 17 2003
GROUP 1700

CONCLUSION

In view of the amendments and remarks set forth above, Applicants contend that Claims 1-28, 31-44, 47-60, and 63-72 presently pending in this application, are patentable, and in condition for allowance. If the Examiner deems there are any remaining issues, we invite the Examiner to call the undersigned at (617) 227-7400.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP


Anthony A. Laurentano
Registration No. 38,220
Attorney for Applicants

28 State Street
Boston, MA 02109
(617) 227-7400
Date: June 16, 2003

Serial No. 09/707,723
Art Unit 1745

14

VERSION WITH MARKINGS TO SHOW CHANGES

In the Claims:

Please cancel Claims 29, 30, 45, 46, 61 and 62 without prejudice.

Please amend Claims 25, 26-28, 31, 38, 39, 41, 42-44, 55, 57, 58-60, 63, 70 and 71 as follows:

25. (Amended) A battery pack, comprising:

a case containing a plurality of cells, the cells are divided into at least one first cell group and at least one second cell group, each said first and second cell group including at least one cell and having a heat load distinct from the others, and the one first cell group is located generally in the center of the battery pack,

at least one air passage formed within the case for allowing cooling air outside the case to enter the case at an upstream portion of the at least one air passage and to pass at least one of along and between the cells, and exit from the case at a downstream portion of the at least one air passage, and wherein at least two of the second cell groups oppose the first cell group along branches of the least one air passage, and

radiator means provided in the at least one air passage so as to be in contact with an outer surface of each of the cells, the radiator means having a plurality of portions each corresponding to each of the cells to form a plurality of radiator plates having different heat capacities, each radiator plate being in contact with one of the first and second cell groups, wherein the portions have different heat capacities according to a heat load of the corresponding cell, wherein the heat capacity of each portion of the radiator means is determined by the area of contact of the portion with the corresponding cell.

26. (Amended) A battery pack in accordance with claim 25, wherein the heat capacity of each portion of the radiator means is further determined by the thickness of the portion.

27. (Amended) A battery pack in accordance with claim 25, wherein the heat capacity of each said portion of the radiator means is further determined by the material of the portion.

Serial No. 09/707,723
Art Unit 1745

15

28. (Amended) A battery pack in accordance with claim 25, wherein the heat capacity of each said portion of the radiator means is further determined by any combination of the area of contact of the portion with the corresponding cell, the thickness of the portion, and the material of the portion.

31. (Amended) A battery pack in accordance with claim [30] 25, wherein the radiator plates include a first radiator plate and two second radiator plates, the first radiator plate surrounding the first cell group at its outer periphery and each of the second radiator plates abuts inner surfaces of one of the second cell groups, and wherein the first radiator plate has a smaller heat capacity than each of the second radiator plates.

38. (Amended) A battery pack in accordance with claim [30] 25, wherein the second cell groups are symmetrical and include an equal number of cells and the first cell group includes fewer cells than each of the second cell groups.

39. (Amended) A battery pack in accordance with claim [30] 25, wherein each second cell group has inner surfaces in contact with one of the second radiator plates, and each second cell group is arranged in a single row of cells bent at one intermediate cell toward the inner surface, the portion of each second radiator plate corresponding to the intermediate cell includes two bulges adjacent to the intermediate cell so that the intermediate cell interposes therebetween.

41. (Amended) A battery pack, comprising:

a case containing a plurality of cells, the cells are divided into at least one first cell group and at least one second cell group, each said first and second cell group including at least one cell and having a heat load distinct from the others, the one first cell group is located generally in the center of the battery pack.

at least one air passage formed within the case for allowing cooling air outside the case to enter the case at an upstream portion of the at least one air passage and to pass at least one of along and between the cells, and exit from the case at a downstream portion of the at least one air

Serial No. 09/707,723
Art Unit 1745

16

passage, and wherein at least two of the second cell groups oppose the first cell group along branches of the at least one air passage, and

radiator means provided in the at least one air passage so as to be in contact with an outer surface of each of the cells, the radiator means having a plurality of portions each corresponding to each of the cells to form a plurality of radiator plates having different heat capacities, each radiator plate being in contact with one of the first and second cell groups, wherein the portions have different heat capacities according to a heat load of the corresponding cell, wherein the heat capacity of each said portion of the radiator means is determined by the thickness of the portion.

42. (Amended) A battery pack in accordance with claim 41, wherein the heat capacity of each portion of the radiator means is further determined by the area of contact of the portion with the corresponding cell.

43. (Amended) A battery pack in accordance with claim 41, wherein the heat capacity of each said portion of the radiator means is further determined by the material of the portion.

44. (Amended) A battery pack in accordance with claim 41, wherein the heat capacity of each said portion of the radiator means is further determined by any combination of the area of contact of the portion with the corresponding cell, the thickness of the portion, and the material of the portion.

47. (Amended) A battery pack in accordance with claim [46] 41, wherein the radiator plates include a first radiator plate and two second radiator plates, the first radiator plate surrounding the first cell group at its outer periphery and each of the second radiator plates abuts inner surfaces of one of the second cell groups, and wherein the first radiator plate has a smaller heat capacity than each of the second radiator plates.

55. (Amended) A battery pack in accordance with claim [46] 41, wherein each second cell group has inner surfaces in contact with one of the second radiator plates, and each second cell group is arranged in a single row of cells bent at one intermediate cell toward the inner surface, the

Serial N 09/707,723
Art Unit 1745

17

portion of each second radiator plate corresponding to the intermediate cell includes two bulges adjacent to the intermediate cell so that the intermediate cell interposes therebetween.

57. (Amended) A battery pack, comprising:

a case containing a plurality of cells, the cells are divided into at least one first cell group and at least one second cell group, each said first and second cell group including at least one cell and having a heat load distinct from the others, the first cell group located generally in the center of the battery pack,

at least one air passage formed within the case for allowing cooling air outside the case to enter the case at an upstream portion of the at least one air passage and to pass at least one of along and between the cells, and exit from the case at a downstream portion of the at least one air passage, at least two of the second cell groups oppose the first cell group along branches of the at least one air passage, and

radiator means provided in the at least one air passage so as to be in contact with an outer surface of each of the cells, the radiator means having a plurality of portions each corresponding to each of the cells, wherein the portions have different heat capacities according to a heat load of the corresponding cell to form a plurality of radiator plates having different heat capacities each radiator plate being in contact with one of the first and second cell groups, wherein the heat capacity of each said portion of the radiator means is determined by the material of the portion.

58. (Amended) A battery pack in accordance with claim 57, wherein the heat capacity of each portion of the radiator means is further determined by the area of contact of the portion with the corresponding cell.

59. (Amended) A battery pack in accordance with claim 57, wherein the heat capacity of each said portion of the radiator means is further determined by the thickness of the portion.

60. (Amended) A battery pack in accordance with claim 57, wherein the heat capacity of each said portion of the radiator means is further determined by any combination of the area of contact

Serial No. 09/707,723
Art Unit 1745

18

of the portion with the corresponding cell, the thickness of the portion, and the material of the portion.

63. (Amended) A battery pack in accordance with claim [62] 57, wherein the radiator plates include a first radiator plate and two second radiator plates, the first radiator plate surrounding the first cell group at its outer periphery and each of the second radiator plates abuts inner surfaces of one of the second cell groups, and wherein the first radiator plate has a smaller heat capacity than each of the second radiator plates.

70. (Amended) A battery pack in accordance with claim [62] 57, wherein the second cell groups are symmetrical and include an equal number of cells and the first cell group includes fewer cells than each of the second cell groups.

71. (Amended) A battery pack in accordance with claim [62] 57, wherein each second cell group has inner surfaces in contact with one of the second radiator plates, and each second cell group is arranged in a single row of cells bent at one intermediate cell toward the inner surface, the portion of each second radiator plate corresponding to the intermediate cell includes two bulges adjacent to the intermediate cell so that the intermediate cell interposes therebetween.

Serial No. 09/707,723
Art Unit 1745

19

In the Specification:

Please replace the paragraph beginning at page 4, line 29, with the following rewritten paragraph:

---According to one practice of the present invention, the battery pack comprises one first cell group located generally in the center thereof and two second cell groups [interposing] opposing the first cell group [across] along branches of the at least one air passage.---